



Docket No.: OGW-0317
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Kazuhito Yanadori

Application No.: 10/691,583

Confirmation No.: 9481

Filed: October 24, 2003

Art Unit: 1772

For: POWER STEERING HOSE

Examiner: C. P. Bruenjes

REPLY BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This is a Reply Brief under 37 C.F.R. §41.41 in response to the Examiner's Answer mailed on October 13, 2006.

All arguments presented within the Appeal Brief of August 29, 2006 are incorporated herein by reference. Additional arguments are provided hereinbelow.

Claims 1-4 and 6 stand or fall together

Claims 1-4, 6 - Claims 2-4 and 6 are dependent upon claim 1. Within the claim 1, *the twisted cords have an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0%, an elongation at break of 8 to 19% and a number of twists of 15 to 30/10 cm, respectively.*

Randle - The Examiner's Answer includes an **admission** that an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0% or an elongation at break of the twisted cords is absent from within **Randle** (Examiner's Answer at page 5).

Specifically, page 5 of the Examiner's Answer provides that "*Randle et al fail to teach the intermediate elongation at 0.85cN/dtex or the elongation at break of the twisted cords.*"

- *Thus, Randle fails to disclose, teach, or suggest twisted cords having an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0%, an elongation at break of 8 to 19% and a number of twists of 15 to 30/10 cm, respectively.*

Ikeda - The Examiner's Answer relies upon Ikeda for the features that are admittedly deficient from within Randle.

But as highlighted on pages 6-7 of the Appellant's Brief, Ikeda fails to provide an express or implied teaching of *twisted cords having an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0%, an elongation at break of 8 to 19% and a number of twists of 15 to 30/10 cm, respectively*. The claim language is clear.

Yet, the Examiner's Answer fails to highlight any teaching within Ikeda showing that these claimed features are to be found within Ikeda.

Instead, the Examiner's Answer merely asserts Ikeda teaches that when forming a hose having a similar structure of two reinforcing layers made from polyester thread positioned within inner, outer and intermediate rubber layers the elongation of the polyester thread at break is set at about 10% (col.2, 1.44-45) (Examiner's Answer at page 5).

In response, this assertion fails to show that *twisted cords having an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0%, an elongation at break of 8 to 19% and a number of twists of 15 to 30/10 cm, respectively* are to be found within Ikeda.

The Examiner's Answer merely asserts Ikeda further teaches that the elongation values of the threads forming the reinforcing layers of the rubber hoses having the structure similar to Randle are important and are optimized based on the desired physical properties of the final article (Examiner's Answer at page 5).

In response, this assertion fails to show that *twisted cords having an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0%, an elongation at break of 8 to 19% and a number of twists of 15 to 30/10 cm, respectively* are to be found within Ikeda.

The Examiner's Answer merely asserts without providing any supporting evidence that when the elongation at break is increased the fatigue resistance is increased and the intermediate elongation is increased (Examiner's Answer at page 5).

In response, this assertion fails to show that *twisted cords having an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0%, an elongation at break of 8 to 19% and a number of twists of 15 to 30/10 cm, respectively* are to be found within Ikeda.

The Examiner's Answer merely asserts that the increase in intermediate elongation leads to larger volume expansion (col.2, 1.44-67) (Examiner's Answer at page 5).

In response, this assertion fails to show that *twisted cords having an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0%, an elongation at break of 8 to 19% and a number of twists of 15 to 30/10 cm, respectively* are to be found within Ikeda.

- Thus, Ikeda fails to disclose, teach, or suggest *twisted cords having an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0%, an elongation at break of 8 to 19% and a number of twists of 15 to 30/10 cm, respectively*.

Combination of Randle and Ikeda - As an initial matter, Randle arguably teaches that the invention of Randle concerns a high pressure, flexible hose and relates more particularly to hoses such as are used in hydraulic braking installations for vehicles (Randle at column 1, lines 11-13).

However, the Examiner's Answer fails to show that the invention of Randle would be suitable as a power steering hose.

Contrary to the case of braking-system hose, a power steering hose is used under a severe condition so as to transfer a high-pressure pulsed fluid flow of which the pressure changes periodically. Thus, with the power steering hose, an important matter for solution is the prevention of vibration generated by the high-pressure pulsed fluid. In the case of the braking-system hose, prevention of vibration does not much matter since a braking-use hose as disclosed in Randle transfers a simple high-pressure fluid flow free of pulsing. Also, the power steering hose is frequently repeatedly subjected expansion and contraction by the high-pressure pulsed fluid, so that it is prone to undergo damage, and it is required to possess a higher durability in use than the braking-use hose.

Ikeda arguably teaches that the invention of Ikeda is related to a layered rubber hose (Ikeda at column 1, lines 7-11).

Likewise, the Examiner's Answer fails to show that the invention of Ikeda would be suitable as a power steering hose.

With the reinforcing cord used in or for the hose of Ikeda, quite possibly it has an intermediate elongation at 3 g/d of $2.7 \pm 1.0 \%$, which may be converted to an intermediate elongation at 0.85 dN/dtex to obtain $0.6 \pm 0.2 \%$, which is considerably lower or smaller than the value defined in applicant's Claim 1 of 2.2 to 5.0%. It may be inferable that the intermediate elongation is so small or low in or with Ikeda as above probably because the hose of Ikeda is a braking-use one.

Even if such hose of Ikeda is applied to a power steering hose, the intermediate elongation of the reinforcing cord is so small or low that it can never be possible to obtain the vibration-preventive result or the high durability attainable according to the hose of the claimed invention.

The Examiner's Answer contends that it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to realize that Ikeda and Randle are analogous insofar as both are concerned with fiber reinforced rubber hoses and that the elongation values of the threads or cords forming the reinforcing layers of fiber reinforced rubber hoses are optimized based on the desired volume expansion, fatigue resistance, and tensile strength desired, as taught by Ikeda, and that an elongation at break of about 10% is well known in the art of fiber reinforced rubber hoses, as taught by Ikeda (Examiner's Answer at pages 5-6).

The Examiner's Answer further contends that it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to select the optimum elongation at break and intermediate elongation value at 0.85cN/dtex within the claimed ranges depending on the intended end result of the hose with regards to volume expansion, fatigue resistance, and tensile strength, as taught by Ikeda (Examiner's Answer at page 6).

In response, the Appellant's Brief has previously addressed these issues, noting that the Office Action has failed to provide any objective teaching to show that the characteristics of

the at least the lower thread layer found within Ikeda of a tensile strength of 8 grams or more per unit denier, an elongation of $10 \pm 1.5\%$, and a loaded elongation of $2.7 \pm 1.0\%$ per unit denier under 3-gram load are the same characteristics of an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0 found within the claimed invention (Appellant's Brief at page 6). A more detailed explanation is found within the Appellant's Brief on page 7.

M.P.E.P. 707.07(f) explains that:

The importance of answering applicant's arguments is illustrated by *In re Herrmann*, 261 F.2d 598, 120 USPQ 182 (CCPA 1958) where the applicant urged that the subject matter claimed produced new and useful results. The court noted that since applicant's statement of advantages was not questioned by the examiner or the Board of Appeals, it was constrained to accept the statement at face value and therefore found certain claims to be allowable. See also *In re Soni*, 54 F.3d 746, 751, 34 USPQ2d 1684, 1688 (Fed. Cir. 1995) (Office failed to rebut applicant's argument).

Nevertheless, the Examiner's Answer has failed to provide any objective evidence in rebuttal to the arguments set forth within the Appellant's Brief. In this regard, no equivalence within the Examiner's Answer has been established between those characteristics of the lower thread layer found within Ikeda and the claimed intermediate elongation at 0.85cN/dtex of 2.2 to 5.0.

- Thus, Randle and Ikeda, either individually or as a whole, fail to disclose, teach, or suggest twisted cords having an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0%, an elongation at break of 8 to 19% and a number of twists of 15 to 30/10 cm, respectively.

Unexpected results - In addition to the arguments provided hereinabove, "one way for a patent applicant to rebut a *prima facie* case of obviousness is to make a showing of 'unexpected results,' i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected." *In re Geisler*, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997).

Consistent with the rule that all evidence of nonobviousness must be considered when assessing patentability, the PTO must consider comparative data in the specification in determining whether the claimed invention provides unexpected results. *In re Margolis*, 785 F.2d 1029, 1031, 228 USPQ 940, 941-42 (Fed. Cir. 1986).

All evidence of nonobviousness must be considered when assessing patentability. *Richardson-Vicks Inc. v. The Upjohn Co.*, 44 USPQ2d 1181, 1186 (Fed. Cir. 1997).

In this regard, paragraph [0014] of the specification for the above-identified application explains that:

If the intermediate elongation of the twisted cords is less than 2.2%, the foregoing reduction effects of the vibration cannot be obtained. On the other hand, if the intermediate elongation exceeds 5.0%, the durability of the hose is reduced.

In this regard, paragraph [0015] of the specification for the above-identified application explains that:

In addition, if the elongation at break of the twisted cords is less than 8%, it is impossible to adjust the intermediate elongation in the foregoing range from 2.2 to 5.0%. When the elongation at break exceeds 19%, the durability of the hose is reduced.

Claims 5 and 7 stand or fall together

Claims 5, 7 - Claim 7 is dependent upon claim 5. Within claim 5, the twisted cords have a double-twist structure in which a plurality of primary twisted cords is twisted together with final twists in a same twist direction of the primary twisted cords.

In this regard, paragraph [0017] of the specification for the above-identified application explains that:

In the present invention, the number of twists of the twisted cords indicates the number of twists of the twisted threads when the twisted cords have the single-

twist structure. When the twisted cords have the double-twist structure, the number of twists of the twisted cords indicates the number of final twists of the cords formed by giving a plurality of primary twisted threads final twists in the same twist direction of the primary twisted threads.

Randle and Ikeda - The reasons for the traversal of these is provided herein above.

Inada et al - Pursuant to 37 C.F.R. § 41.39:

(b) If an examiner's answer contains a rejection designated as a new ground of rejection, appellant must within two months from the date of the examiner's answer exercise one of the following two options to avoid sua sponte dismissal of the appeal as to the claims subject to the new ground of rejection:

(2) *Maintain appeal*. Request that the appeal be maintained by filing a reply brief as set forth in § 41.41. Such a reply brief must address each new ground of rejection as set forth in § 41.37(c)(1)(vii) and should follow the other requirements of a brief as set forth in § 41.37(c). A reply brief may not be accompanied by any amendment, affidavit (§§ 1.130, 1.131 or 1.132 of this title) or other evidence. If a reply brief filed pursuant to this section is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened before the primary examiner under paragraph (b)(1) of this section.

Pages 6-7 of the Examiner's Answer provide that:

However, Inada et al teach reinforcing fiber layers for rubber hose reinforcement formed of twisted organic fibers (col.1, 1.8-13 and col.2, 1.46-50) and teaches that these twisted organic fibers are formed into double-twist structures (col.5, 1.1-3) in which a plurality of primary twisted cords are twisted together with final twists in a same twist direction of the primary twisted cords. One of ordinary skill in the art would have recognized that the references are analogous insofar as all three references are concerned with fiber reinforcement layers used in the formation of rubber hoses.

No prior recitation to "Inada et al" has been found within the Final Office Action. Accordingly, the recitation to "Inada et al" is deemed to be a new ground of rejection contained within the Examiner's Answer.

According, by the filing of this Reply Brief, Appellant request that the appeal be maintained. 37 C.F.R. § 41.39(b)(2).

In this regard, the Examiner's Answer failed to clearly identify the reference number for the "Inada et al" reference. Accordingly, the Examiner's Answer is incomplete. M.P.E.P. §707.07. Based upon this omission, it is nearly impossible to address the assertions made within the Examiner's Answer regarding the alleged teachings of "Inada et al".

While the Examiner's Answer has failed to clearly identify the reference number for the "Inada et al" reference, the non-final Office Action mailed on September 7, 2005 identifies U.S. Patent No. 4,787,200 to Inada et al. (Inada) as prior made of record and not relied upon but considered pertinent to Applicant's disclosure (non-final Office Action at paragraph 3).

Inada arguably teaches that in FIG. 1(a) is shown a primary twist yarn which is obtained by first twisting an aromatic polyamide filament yarn and is used for the cords according to the present invention, and FIG. 1(b) shows a two folded yarn obtained by using two primary twist yarns shown in FIG. 1(a) (Inada at column 2, lines 38-44).

However, Inada fails to disclose, teach or suggest *twisted cords having a double-twist structure*.

Furthermore, Inada fails to disclose, teach or suggest *a plurality of primary twisted cords being twisted together with final twists in a same twist direction of the primary twisted cords*.

As such, the Examiner's Answer has failed to show that the features absent from within Randle and Ikeda are to be found within the alleged "Inada et al" reference.

- Thus, the Examiner's Answer fails to show that the alleged "Inada et al" reference discloses, teaches, or suggest *twisted cords having an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0%, an elongation at break of 8 to 19% and a number of twists of 15 to 30/10 cm, respectively*.

- *Moreover, the Examiner's Answer fails to show that the alleged "Inada et al" reference discloses, teaches, or suggest twisted cords having a double-twist structure in which a plurality of primary twisted cords is twisted together with final twists in a same twist direction of the primary twisted cords.*

Kuribayashi - As shown hereinabove, Randle and Ikeda, either individually or as a whole, fail to disclose, teach, or suggest *twisted cords having an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0%, an elongation at break of 8 to 19% and a number of twists of 15 to 30/10 cm, respectively.*

Like Randle and Ikeda, Kuribayashi fails to disclose, teach, or suggest twisted cords having an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0%.

Kuribayashi also fails to disclose, teach, or suggest twisted cords having an elongation at break of 8 to 19%.

Moreover, Kuribayashi fails to disclose, teach, or suggest twisted cords having a number of twists of 15 to 30/10 cm.

- *Thus, like Randle, Ikeda and Inada, Kuribayashi fails to disclose, teach, or suggest twisted cords having an intermediate elongation at 0.85cN/dtex of 2.2 to 5.0%, an elongation at break of 8 to 19% and a number of twists of 15 to 30/10 cm, respectively.*

Kuribayashi arguably teaches that double twist cords (first twist: 330 turn/m (Z), second twist: 330 turn/m (S)) of poly-p-phenyleneterephthalamide fibers ("TWARON" 1000 manufactured by Akzo Co., 1500 d) were continuously dipped in the following epoxy treating solution under a tension of 500 g by a cord dip treating machine and then were dried and cured by passing them in ovens of 150°C and 240°C for 2 minutes, respectively (Kuribayashi at column 5, lines 1-10).

Kuribayashi arguably teaches that double twist cords (first twist: 330 turn/m (Z), second twist: 330 turn/m (S)) of poly-p-phenyleneterephthalamide fibers ("TWARON" 1000 manufactured by Akzo Co., 1500 d) were continuously dipped in the following epoxy treating solution under a tension of 500 g by a cord dip treating machine and then were dried and cured

by passing them in ovens of 150°C and 240°C for 2 minutes, respectively (Kuribayashi at column 7, lines 12-19).

However, Kuribayashi fails to disclose, teach, or suggest that a plurality of primary twisted cords is twisted together with final twists in a same twist direction of the primary twisted cords.

- *Thus, Kuribayashi fails to disclose, teach, or suggest twisted cords having a double-twist structure in which a plurality of primary twisted cords is twisted together with final twists in a same twist direction of the primary twisted cords.*

Conclusion

The prior art of record, either individually or as a whole, fails to disclose, teach or suggest all the features of the claimed invention. For at least the reasons set forth hereinabove, the rejection of the claimed invention should not be sustained.

Therefore, a reversal of the rejection of March 30, 2006 is respectfully requested.

If any additional fee is required or any overpayment made, the Commissioner is hereby authorized to charge the fee or credit the overpayment to Deposit Account # 18-0013.

Dated: December 13, 2006

Respectfully submitted,

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